



City of Carnation



King County

Carnation Wastewater Treatment Facility

Fact Sheet

Treatment Plant

Wastewater treatment is essential to protect public health and the environment

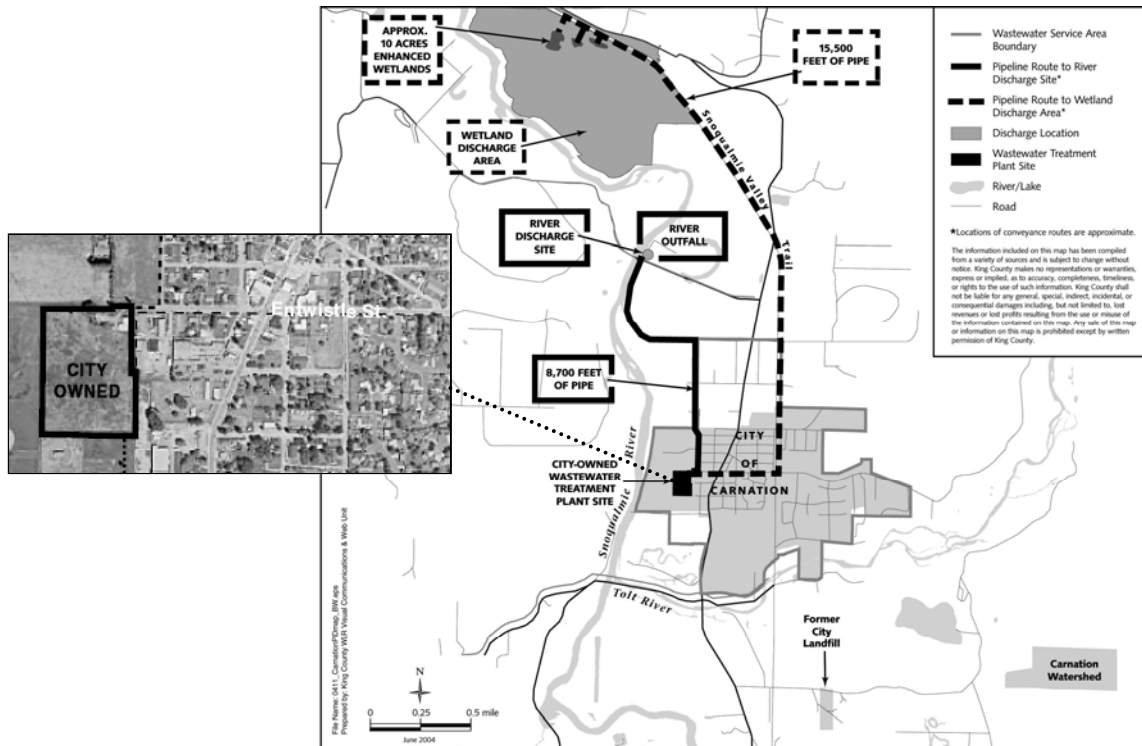
Several years ago, the City of Carnation determined that replacing on-site septic systems with a wastewater treatment facility is important to address public health concerns, achieve the city's comprehensive plan goals, and enhance community livability.

The Carnation City Council contracted with King County to design, build, and operate a treatment plant, conveyance pipe and discharge pipe. This facility will serve the city and its urban growth area as defined in the city's comprehensive plan.

The plant will initially treat about 400,000 gallons of wastewater per day. The capacity could be expanded to about 450,000 gallons per day to meet planned growth. Proposed construction of the facility will begin in 2006. The plant is expected to begin operation in late 2007.

Where will the wastewater treatment plant be located?

The treatment plant will be on city-owned property, within city limits at the west end of Entwistle Street. The city-owned site is 10 acres and consists of two parcels (see map below). Siting of the facility will be focused on the north parcel because of floodplain concerns on the south parcel. The city also plans to build its wastewater vacuum station on the site.



Carnation Wastewater Treatment Facility Locations

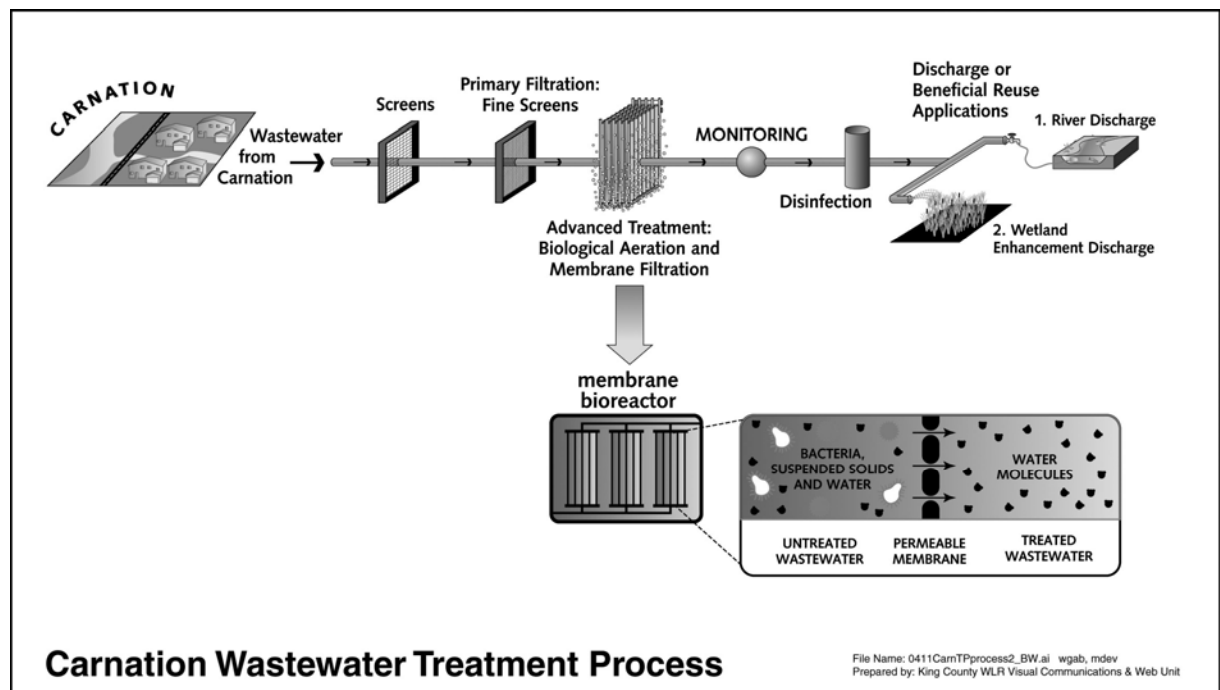
King County evaluated this site in the Draft and Final Environmental Impact Statement for the Carnation Wastewater Treatment Facility. The county and city will provide opportunities for the public to learn more about the treatment plant site layout and design features in the coming months.

Wastewater treatment 101

Wastewater is usually treated in two stages. Primary treatment removes about 60 percent of the solids in the waste stream by skimming and settling. Secondary treatment removes most remaining solids, up to 95 percent, using a biological process. In secondary treatment, wastewater enters an aeration basin, where oxygen is added to the wastewater and activates the naturally occurring bacteria that eat dissolved organic material. This standard process is used at King County's existing regional treatment plants in Seattle and Renton. This secondary effluent meets the tough environmental requirements and regulatory standards required to discharge into Puget Sound.

Advanced treatment, also called tertiary treatment, is additional treatment of wastewater beyond the secondary or biological treatment stage. It often includes the removal of a high percentage of suspended solids through filtration and removal of nutrients such as nitrogen and sometimes phosphorus. **The Carnation Wastewater Treatment Plant will use advanced treatment regardless of the discharge alternative chosen.**

How clean will the water be?



King County has chosen a new advanced treatment process called a membrane bioreactor, or MBR, for the Carnation Wastewater Treatment Plant. MBRs combine standard biological wastewater treatment with synthetic membrane filters submerged in wastewater. Membrane

cartridges or plates are in a tank where the filtration process takes place. The filters have pores large enough to let water molecules pass through but small enough to screen out undesired particles, including individual bacteria. Suction pulls clean water through the membranes. Solids stay in the process tank, while cleaned water goes on and is disinfected.

Unlike typical secondary treated wastewater, no additional treatment except disinfection is required to produce Class A reclaimed water suitable for nearly unrestricted uses, including human contact, but not for human drinking water. Membranes have been used to treat water to drinking water quality in the United States, but have also been used to treat wastewater around the world for the last fifteen years. For the size of Carnation's treatment plant, membranes will cost about the same amount as conventional technology such as sand filtration. Since membranes require more energy, operation and maintenance costs will be higher. For information on membrane bioreactors, check the King County Web at <http://dnr.metrokc.gov/wtd/reuse/alternatives.htm>.

Where can I get more information or let you know my opinion?

This is one of four fact sheets, the others cover the project overview, the river discharge alternative and the wetland enhancement discharge alternative. For copies of the other fact sheets or other information on the treatment facility, contact the King County Carnation project team by:

For more information on the treatment facility, contact the King County Carnation project team by:

- Calling the project information line at 206-263-5212 or toll-free at 1-800-325-6165, ext. 35212.
- Sending an e-mail message to CarnationWWTP@metrokc.gov.
- Checking the Web site at <http://dnr.metrokc.gov/WTd/carnation/>.

For information on the local sewage collection system, contact Bill Brandon, City Manager for the City of Carnation, at **425-333-4192** or check the Web at www.ci.carnation.wa.us.

**To get this information in alternative formats,
call 206-296-8361 or 711 (TTY)**